

# SCORM MODULES FOR IL INSTRUCTION AND ASSESSMENT

Eric Kowalik, Marquette University  
LibTech Conference 2019

# Information Literacy Modules

Interactive Articulate Storyline modules developed to teach undergraduates information literacy skills such as narrowing a topic, evaluating sources and citing.



<http://marquetterml.github.io/information-literacy-modules/>

## /// About the Project

These modules were developed to assist librarians teaching information literacy instruction in Marquette's First Year English (FYE) program. They have been used in a traditional face to face instruction, flipped classroom instruction or as stand alone online assignments.

The modules were designed using Articulate Storyline 3 - Build 3.3.15007 and were exported as SCORM packages which were then loaded into FYE course sites in Desire2Learn (D2L), Marquette's Learning Management System (LMS).

A more in depth description of how the modules were used in information literacy instruction can be found in the chapter "Problems and Promises of Using LMS Learner Analytics for Assessment" in the 2018 book *Academic Libraries and the Academy: Strategies and Approaches to Demonstrate Your Value, Impact, and Return on Investment, Volume Two*.

In 2015, Grand Valley State University (GVSU) adapted the anatomy of citation tutorial to meet the instructional needs at their campus. In a co-authored paper, members of the GVSU and Marquette team share the peaks and pitfalls of developing the module.



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Download  
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# Academic Libraries *and the* Academy



STRATEGIES AND APPROACHES

TO DEMONSTRATE YOUR

VALUE, IMPACT, AND

RETURN ON INVESTMENT

VOLUME TWO

*Edited by  
Marwin Britto  
and Kirsten Kinsley*



Chapter 20

## Problems and Promises of Using LMS Learner Analytics for Assessment

Case Study of a First-Year  
English Program

*Valerie Beech and Eric Kowalik*

### Context at Large

Information literacy (IL) is considered crucial for managing information overload in both the workplace and everyday life.<sup>1</sup> While librarians have been teaching relevant IL concepts and skills for many years, they have had limited opportunity to assess the learning of their students. In this case study, the authors argue that by leveraging a learning management system (LMS) and online tutorials, performance assessment of students' IL skills can be implemented at scale in a required course program.

# What to expect...

- Background about the program.
- Describe the transition to using online modules.
- Describe development of online modules.
- Examine assessment in action.
- Explore lessons learned.





# About First Year English

- Taken by almost all first year students.
- Libraries' largest instruction client.
- First exposure to academic research and academic writing.



# Traditional Model



## In Class

- One shot instruction.
- More materials than time.



## After Class

- Little chance to follow up.
- Waiting for Godot.



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# An Opportunity for Change

- Created Librarian role in LMS.
- Assigned instructors, not sections.
- Develop online modules for flexible instruction and better assessment.



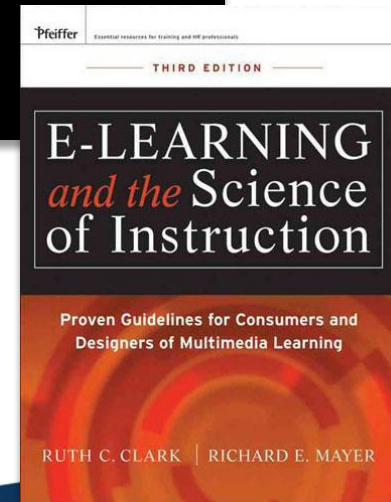
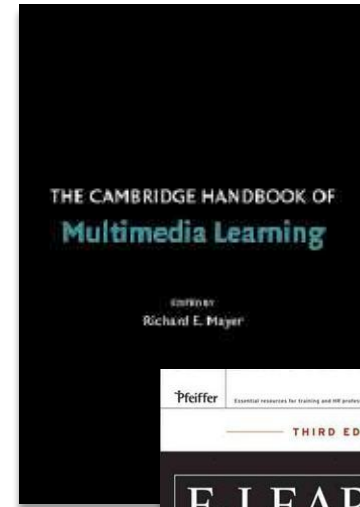


# Toward an Embedded Model

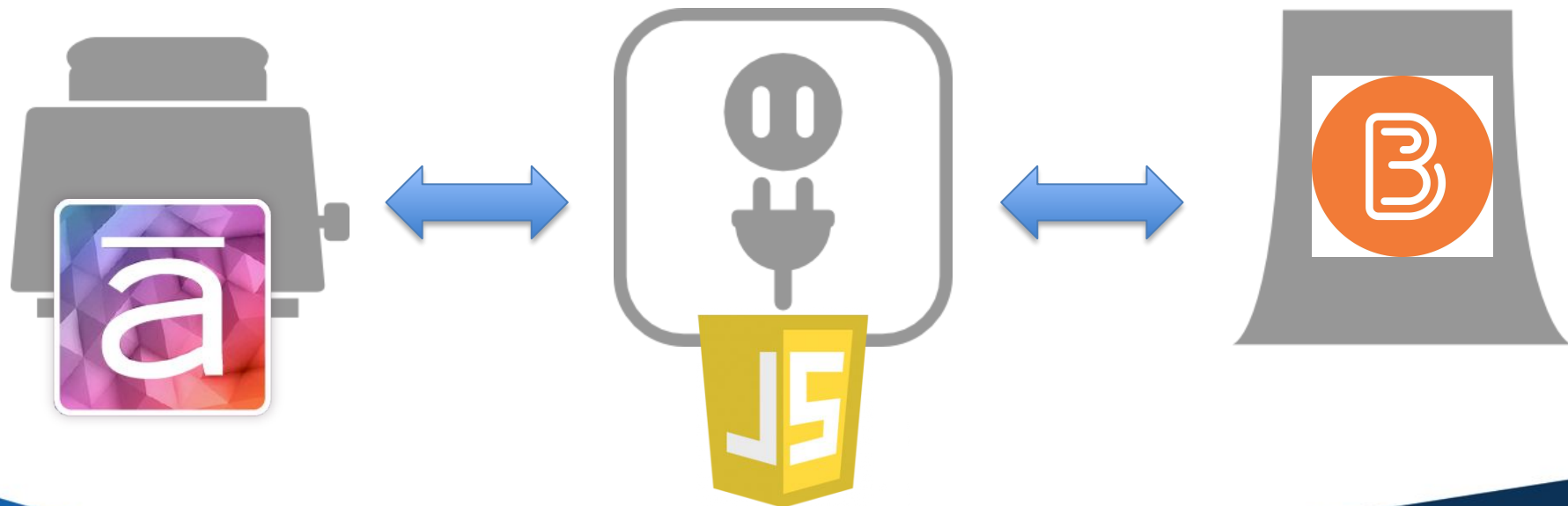
|                                    | <i>Develop assignments</i> | <i>Grading</i> | <i>Multiple IL sessions</i> | <i>Multiple librarians</i> | <i>Co-teaching</i> | <i>Identified as IL expert</i> | <i>Focus on IL skill development</i> | <i>Focus on course IL outcomes</i> |
|------------------------------------|----------------------------|----------------|-----------------------------|----------------------------|--------------------|--------------------------------|--------------------------------------|------------------------------------|
| <b>Entry Level</b>                 | X                          |                |                             |                            |                    | X                              | X                                    | X                                  |
| <b>Twin Pack</b>                   | X                          |                | X                           |                            |                    | X                              | X                                    | X                                  |
| <b>Immersion (PBL)</b>             | X                          |                | X                           | X                          |                    | X                              | X                                    | X                                  |
| <b>Co-teaching</b>                 | X                          | X              | X                           |                            | X                  | X                              | X                                    | X                                  |
| <b>Co-teaching (not IL expert)</b> | X                          | X              | X                           |                            | X                  |                                | X                                    | X                                  |

# Online Module Development

- Focus on “threshold concepts”.
- Incorporate multimedia learning theory.
  - Short, focused lessons.
  - Conversational instead of formal style.
  - Offer practice opportunities.
  - Utilize explanatory feedback.
  - Give control, but not a lot.



# SCORM Explained



# Launching the Modules

Academic Research Intro Ask a Librarian

**Select a Topic and Initial Keywords**

Before you begin searching in Academic Search Complete, you will need to choose a topic and 2 to 3 initial keywords to start your search.

Need some help? Check out these brief tutorials on [how to narrow down a broad research topic](#) and [choosing keywords for your search](#).

Main Menu

Some Friendly Advice (Evaluating Sources) Ask a Librarian

Tina's topic is "The recent Ebola outbreak in West Africa." She has provided links to 3 sources she plans to use in her paper. Read each source, then provide brief feedback on it. Why she should or shouldn't use it?

1 [Ebola virus disease, West Africa](#)

2 [Ebola Virus Death Toll Rises to 142 in West](#)

3 [Cross-Species Pathogen Transmission and](#)

Main Menu

Anatomy of Citations Ask a Librarian

ProQuest

Outsmarting Dengue Fever

Coffey, Rebecca [Scientific American](#) 304, 4 (Apr 2011): 16

Abstract (summary) Translate

Scott O'Neill of the University of Queensland and his colleagues are testing a new method of reducing the spread of dengue, which is a growing scourge in the tropics and has recently shown up in the US, though the disease is usually not fatal, dengue can land patients in the hospital, and it has no cure or vaccine. O'Neill's approach

Help a Buddy Out (Narrowing a Topic) Ask a Librarian

Brent's topic is *Ebola*. She looked up the topic on Wikipedia, Google and Gale Virtual Reference Center Database and found interventions are different based place. It gave him the idea to use geography and interventions as limiters to narrow his topic.

Use the limiters below to help Brent find a topic within *Ebola* that seems interesting and narrow enough.

Research Question:  
What is the state of the outbreak control and containment of Ebola in Africa?

Geography: [Africa](#) [Central Africa](#) [Ghana](#)

Interventions: [Outbreak Control](#) [Vaccine Research](#) [WHO Efforts](#)

I'm Done

Main Menu

The Party Ask a Librarian

**The Party**

When researching for an academic argument, it is important to be sure that your sources are not only credible but that they are relevant to your topic in a specific way.

Academic arguments are like a written conversation where authors acknowledge and respond to the work that's been done before them and add new information or critique the assumptions and beliefs that have been established.

To practice thinking about what sources have in common, instead of choosing sources, you'll choose who to invite.

Your goal is to put together a small dinner party where the guests will be able to find enough common ground to have interesting conversations. Click the photo of each guest to read their profile; select one of the four triad combinations and then hit the Submit button at the bottom left.

SUBMIT

Academic Library Jargon Word Search Ask a Librarian

Academic Library Jargon Word Search

How to Play

|   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|
| E | E | D | X | H | L | N | B | E | E |
| B | C | L | M | N | P | M | E | E | A |
| S | V | B | E | V | T | E | A | M | S |
| C | L | V | N | G | H | I | L | L | K |
| O | P | F | I | N | D | I | T | S | M |
| Q | W | E | L | L | E | N | E | A | T |
| F | J | K | E | A | T | E | R | Y | E |
| Z | A | P | R | O | Q | U | E | S | T |
| B | R | A | T | E | B | N | Z | L | K |
| J | W | A | R | R | I | O | R | S | P |

Score: 0

Find EBSCO

EBSCO is a library database vendor, one of the biggest!




<http://www.marquette.edu/library/lor/first-year-english>



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# Entry Level Model

| Prior to Class  | In Class   | After Class   |
|---|--|---|
| <ol style="list-style-type: none"><li>1. Assigned online module.</li><li>2. Foreshadow class lesson.</li><li>3. Review of student work.</li></ol>  | <ol style="list-style-type: none"><li>1. Tailored instruction.</li><li>2. More time for higher level work/discussion.</li></ol>  | <ol style="list-style-type: none"><li>1. Continue discussion.</li><li>2. Opportunities for additional modules in LMS.</li></ol>  |

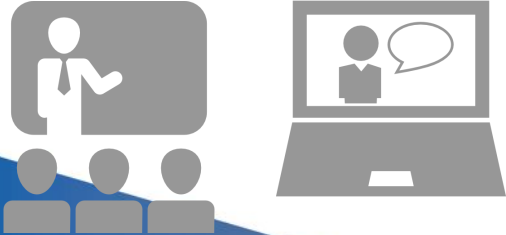




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# Twin Pack Model

| Prior to Class  | In Class   | After Class  |
|---|--|--|
| <ol style="list-style-type: none"><li>1. Early in-class visits.</li><li>2. Assigned online modules.</li><li>3. Review of student work.</li></ol>  | <ol style="list-style-type: none"><li>1. Tailored instruction.</li><li>2. More time for higher level work/discussion.</li></ol>  | <ol style="list-style-type: none"><li>1. Future class visits.</li><li>2. Additional online modules and review of student work.</li></ol>  |



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# Assessment



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# Assessment History

- 2012-2014:
  - Student surveys: evaluation and assessment questions.
- 2015:
  - LMS data analysis with IRB approval.



# 2012-14: Assessment Methods

| Question (paraphrased)   | 'Correct' answer              | Percentages |       |       |
|--|-------------------------------|-------------|-------|-------|
|  |                               | 2012        | 2013  | 2014  |
| How do you get help in the library?                                      | All of above ...              | 95.59       | 97.65 | 96.27 |
| For malaria topic, choose the most effective article search strategy ... | mosquito and nets and malaria | n/a         | 66.91 | 68.25 |
| What do you do when there's no full-text?                                | Find It @ MU                  | 89.03       | 91.68 | 92.29 |
| Identify bold-font element in an article citation ...                    | Article title                 | 72.16       | 75.77 | 83.80 |
| What's your confidence level after the workshop?                         | More confident                | 84.77       | 84.45 | 82.65 |

# 2015 Methodology

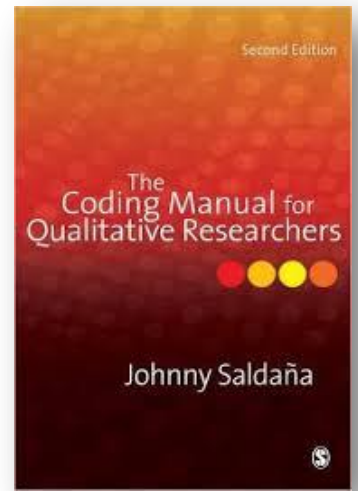
- Consent from 177 students in 19 Freshman English sections.
- Harvested LMS data from Intro to Academic Research module.
- 2 coders created a codebook for analyzing data.
- Qualtrics form for ease and accuracy.





# Codebook Themes

- Coder evaluation (subjective)
- Emotional expression
- Mention of past experience
- Comparison with Google, other web search
- Research process
- Response contents (descriptive)
- Database searching specifics



# Qualtrics Form

These are all single answer questions (radio buttons)

Question: anonymized ID drop-down—the code that corresponds to the student statement

Question: Coder's name—who did the coding

1. Eric
2. Valerie

Question: Statement Topic statement/question:

1. Good faith effort, clearly understood
2. Adequate, sufficient for understanding student's intent (i.e., student clearly on task)
3. Not a good faith response

Question: Subject consistency (research topic/question; 2 keywords; article title)

1. Not a good faith response
2. No real connection, but seems as though student was on task
3. 2 or 3 out of 4 are well connected (research topic, 2 search terms, and article title)
4. All 4 (search topic, 2 search terms, and article title) are well connected

Question: Keyword choices (search terms)

1. Not on topic
2. Functional, but not very effective
3. Good choices

Question: Volunteered information:

1. n/a, none
2. Past experience: Student mentions some past experience (e.g., I've done this all before; same databases as my HS; never seen these tools before)
3. Emotional expression: Student mentions emotions or feelings (e.g., anxiety, confusion; surprise, relief; confidence)
4. Google comparison: Student mentions Google/web searching, makes comparison

Question: Content items (descriptive):

1. n/a, none
2. "I had no challenges"
3. Student mentions or describes a challenge
4. Student describes **internal thought process**, thinking aloud, stream of consciousness
5. Student describes **article content**
6. Student mentions **Boolean** commands
7. Student mentions **keywords** (e.g., changing, choosing; synonyms; number of; examples of more concrete responses)
8. Student describes **search results qualitatively** (e.g., too many/few; relevant or not)
9. Student describes **search results mechanically** (e.g. browsing, scrolling; limiting, choosing?)
10. Student mentions **research question/topic/problem** (may or may not include keywords, more abstract responses)
11. Student mentions **credibility, authority** (about either database or articles)
12. Mentions **efficiency**, saving time
13. Mentions **specificity** (importance or impact of)
14. Mentions **evaluation** or describes evaluation criteria/process
15. Mentions **relevance or irrelevance** (relatedness, "fit") or describes them
16. Student **used terms ambiguously**





## Academic Library Research 101

In this tutorial, you'll learn a little more about library research and how to search the database, Academic Search Complete.

You'll also learn why you should be using one of these databases instead of a free tool like Google Scholar or Wikipedia.

Select one of the Post-it notes to the right to begin exploring library research.

To get credit for this assignment, you **MUST** complete Post-it note #4, Practice Using Academic Search Complete.

Research for  
Expository  
Writing  
(VIDEO)

1

Why Use  
Library  
Databases?

2

How to Use  
Academic  
Search  
Complete  
(VIDEO)

3

View your  
Submitted  
Information

4



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## Database Searching Practice

This 4 step activity will get you started on the process of searching for articles for your paper. The academic search process may change your focus, maybe even your research question.



---

### STEP 1: Select an Idea to Research

Before you begin searching, you need a research idea. Type your initial idea as a question below.

*Example: Is obesity increasing around the world?*

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## STEP 2: The Search Statement

A search statement has 2 parts: keywords, and a search command.

1. Enter 2 keywords (or phrases) to start searching.
2. Pick the appropriate search command (Boolean operator).

The idea you picked is:  
*is obesity spreading  
around the world*

### Your Search Statement:

type *first keyword* here...

Pick One ▼

type *second keyword* here...

Boolean recap:

AND: Narrows a search.

OR: Broadens a search.

NOT: Excludes a term.

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## STEP 3: Search Skills In Action

[Click here to open a new browser window.](#)

- Start the research process with your search statement.
- *Pick 1 article* relevant to your research topic.
- Enter the title, journal title, and publication year below.

Search statement: ***obesity AND global***

1.)

2.)

3.)

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## STEP 4: Research Reflection

Research is a process; the end point may not be what you expected.

Briefly describe your database searching:

- What did you do after entering your initial search statement?
- What challenges did you have?
- What did you learn about the academic research process?

Type your *reflection* here...

Previous

Next



|                                  |       |  |   |         |   |         |
|----------------------------------|-------|--|---|---------|---|---------|
| Scene1_Slide5_Essay_0_0 ?        | Other |  | -Searched for a title related to my topic, something somewhat specific -I wanted something not focused on HIV; however, most are -How to search for what I want, what keywords to use | Neutral | 1 | 0:00:00 |
| Scene1_Slide7_ShortAnswer_0_0 ?  | Other |  | What are the health conditions like in French prisons?  | Neutral | 1 | 0:00:00 |
| Scene1_Slide8_ShortAnswer_0_0 ?  | Other |  | French Prisons  | Neutral | 1 | 0:00:00 |
| Scene1_Slide9_ShortAnswer_0_0 ?  | Other |  | AND   | Neutral | 1 | 0:00:00 |
| Scene1_Slide10_ShortAnswer_0_0 ? | Other |  | health conditions   | Neutral | 1 | 0:00:00 |
| Scene1_Slide11_ShortAnswer_0_0 ? | Other |  | Limited access to HIV prevention in Frenchprisons (ANRS PRI2DE): implications for public health and drug policy   | Neutral | 1 | 0:00:00 |
| Scene1_Slide12_ShortAnswer_0_0 ? | Other |  | BMC Public Health   | Neutral | 1 | 0:00:00 |
| Scene1_Slide13_ShortAnswer_0_0 ? | Other |  | 2011  | Neutral | 1 | 0:00:00 |

# Module Data Collected

- Student topic, or research question
- Keywords chosen by student for topic
- Choice of Boolean command
- Article information:
  - Article title
  - Journal title
  - Publication year
- Reflection, responses to prompts



# Subject Consistency Example

- **Search/topic sentence:**

- "How common is Alzheimer's Disease in the world"

- **Keywords:**

- Alzheimer's Disease AND common

- **Article title:**

- "Active immunization against complement factor C5a: a new therapeutic approach for Alzheimer's disease"

- **Publication title:**

- Journal entry



# Subject Consistency Analysis

## Subject Consistency in Responses, a Validity Check

| Code | Definition or Description                          | # of Codes             | Percentage  |
|------|--|------------------------|-------------|
| 1    | Not a serious answer                               | 0                      | 0           |
| 2    | No subject consistency (but student seems on task) | 0                      | 0           |
| 2.5  | Split decision (2 or 3)                            | 8                      | 4.5         |
| 3    | 2 or 3 items consistent                            | 42                     | 23.7        |
| 3.5  | Split decision (3 or 4)                            | 55                     | 31.1        |
| 4    | 4 items consistent                                 | 71                     | 40.1        |
|      | <b>Total responses coded</b>                       | <b>176<sup>a</sup></b> | <b>99.4</b> |

a. One response was inadvertently skipped by one coder for this part of the analysis..



# Keyword Choice Analysis

## Search Statement Construction—Keyword Choices

| Code | Definition or Description    | # of Codes | Percentage |
|------|------------------------------|------------|------------|
| 1    | Poor choices                 | 0          | 0.0        |
| 1.5  | Split decision (1 or 2)      |            |            |
| 2    | Functional, but not the best |            |            |
| 2.5  | Split decision (2 or 3)      |            |            |
| 3    | Good choices                 |            |            |
|      | <b>Total responses coded</b> |            |            |

- **Rating 2 example:**
  - obesity AND world
- **Rating 3 example:**
  - women AND refugees



# Boolean Choice Analysis

## Search Statement Construction—Boolean Command Choice

| Code | Definition or Description                | # of Codes | Percentage |
|------|--|------------|------------|
| 1    | Poor choice                              | 0          | 0.0        |
| 1.5  | Split decision (1 or 2)                  | 10         | 5.6        |
| 2    | Functional technically, but not the best | 6          | 3.4        |
| 2.5  | Split decision (2 or 3)                  |            |            |
| 3    | Good choice                              |            |            |
|      | <b>Total responses:</b>                  |            |            |

- **Rating 1 example:**

- nature OR rights

- **Rating 2 example:**

- psychological disorders OR refugee health

# Publication Title Analysis

## Recognition of Publication Titles

| Code | Definition or Description        | # of Codes | Percentage  |
|------|----------------------------------|------------|-------------|
| 1    | Not a serious answer             | 1          | .6          |
| 2    | Not from database                | 14         | 7.9         |
| 2.5  | Split decision (2 or 3)          | 1          | .6          |
| 3    | Not a publication title          | 37         | 20.9        |
| 3.5  | Split decision (3 or 4)          | 17         | 9.6         |
| 4    | Probably popular, trade, or news | 14         | 7.9         |
| 4.5  | Split decision (4 or 5)          | 6          | 3.4         |
| 5    | Probably scholarly               | 86         | 48.6        |
|      | <b>Total responses coded</b>     | <b>176</b> | <b>99.5</b> |

# Analyzing Reflection Prompts

- What did you do after entering your initial search statement?
- What challenges did you have?
- What did you learn about the academic research process?



# Better than Google?!

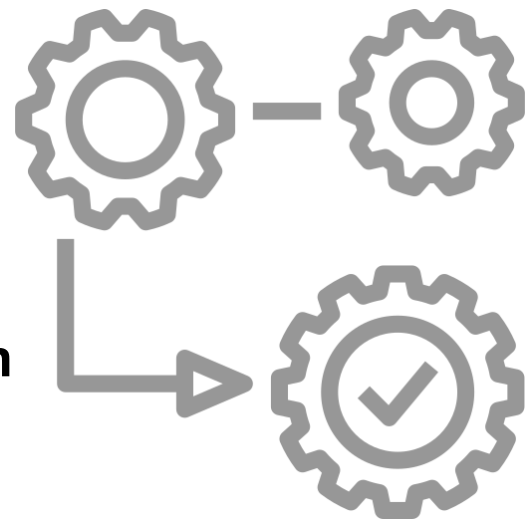
- 16.4 % of responses made a comparison between databases and Google, et al.
  - More credible, reliable, authoritative
  - Better than web searching
  - More efficient, save time
  - Harder to search





# Research as Process

- 29.4 % addressed this theme
  - Revised, focused, **changed research question**
  - **Research takes time** if you want good sources
  - Need to spend time thinking about research question
  - Need **background information** on topic
  - Hard to formulate a research question
  - Separate research sources may be necessary for different aspects of research question



# Study Findings

- Open-ended prompt questions:
  - Two-thirds of students addressed the more concrete prompts, described what they did.
  - Only 29% wrote on the research process.
- 56% clearly recognize journal /magazine titles.
- 21% have difficulty recognizing publication titles.
- 90% chose the appropriate Boolean command.
- Recurring themes in students' writing: relevance, specificity in keywords and evaluation.



# Study Limitations

- Case study, no control group.
- Data NOT collected:
  - How much time needed to complete it?
  - Was credit given?
  - When the student completed the module (before or after IL session?)
- Codebook problems created inter-coder divergence.



# Lessons Learned



- Focus on 'friend-raising'.
- Support for instructors AND librarians.
- Workload and scalability
  - Even entry level model increases the workload of instruction librarians with many other responsibilities and courses to support.
- Feasibility of assessment.



# Changes Since the Study

- FYE program re-worked twice.
  - Focus on multi modal projects, i.e. posters, videos, websites.
  - No pre-loaded or required modules.
  - Librarian Y
- Online modules available in LMS for all!
- Focus on accessibility.



# New Way to Load Modules in D2L

## APA Tutorial ▾

Add dates and restrictions...

Add a description...

New ▾

Add Existing Activities ▾



Upload Files

Video or Audio

Create a File

Create a Link

Add from Manage Files

New SCORM Object

New Checklist

## Skills Tutorial - Academic Library Research 101 Results

Created by Fake Student

Sample Research Topic:

topic

Sample Search Statement:

keywrđ 1 AND kewyord 2

Sample Article Information:

df | sgsfgfs | sfgfg

Research Reflection:

- (1) What did you do after entering your initial search statement?
- (2) What challenges did you have?
- (3) What did you learn about the academic research process?

redlecitoj



# Next Steps

- Let's turn that codebook into a rubric!
- Improve coordination with instructors.
- Export LMS data as .csv! Yay!
- Look for development partners.
- Discussing data use policy.



# References

- [The Coding Manual for Qualitative Researchers](#)
- [Threshold Concepts and Transformational Learning](#)
- [Cambridge Handbook of Multimedia Learning](#)
- [E-Learning and the Science of Instruction](#)
- [Paper Prototyping: The Fast and Easy Way to Design and Refine User Interfaces](#)
- Icons made by [monkik](#), [Freepik](#), [geotatah](#) and [wanicon](#)



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